

# **SUSPENSION LAMP HAVING QUICK CONNECTION FUNCTION**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention relates to a suspension lamp, and more  
5 particularly to a suspension lamp having a quick connection function.

### **2. Description of the Related Art**

A conventional suspension lamp 1 in accordance with the prior art  
shown in Fig. 1 comprises a switch box 11 having a peripheral wall formed  
with a plurality of locking grooves 111, a plurality of bent support tubes 12  
10 each mounted on the switch box 11 and each having an end formed with a  
connector 121 locked in a respective one of the locking grooves 111 of the  
switch box 11, an upper cover 14 mounted on an opened top of the switch  
box 11 and having a center formed with a through hole 141, a hollow  
threaded rod 13 mounted in the switch box 11 and having a first end extended  
15 through the through hole 141 of the upper cover 14 and a second end formed  
with a threaded section 131 formed with an opening 132, a nut 142 screwed  
on the first end of the threaded rod 13 and rested on the upper cover 14, a  
screw 15 extended through a closed bottom of the switch box 11 and screwed  
into the threaded section 131 of the threaded rod 13, and a nut 16 screwed on  
20 the screw 15 and rested on the bottom of the switch box 11. The conventional  
suspension lamp further comprises a power supply wire 17 extended through  
the threaded rod 13 and the opening 132, and a plurality of electric wires 18

each extended through a respective one of the support tubes 12 and each connected to the power supply wire 17.

However, the operator needs to separate the positive and negative poles of each of the electric wires 18 respectively, so that the positive and negative poles of each of the electric wires 18 are connected to the positive and negative poles of the power supply wire 17 respectively and are coated by a protective tape 19 to prevent occurrence of electrical leakage. Thus, the operator is located a higher position to separate the positive and negative poles of each of the electric wires 18 respectively so as to connect the positive and negative poles of each of the electric wires 18 with the positive and negative poles of the power supply wire 17 respectively and to coat the connected electric wires 18 by the protective tapes 19, thereby causing inconvenience to the operator in assembly of the conventional suspension lamp.

## **SUMMARY OF THE INVENTION**

The primary objective of the present invention is to provide a suspension lamp having a quick connection function.

Another objective of the present invention is to provide a suspension lamp having a better safety when in use.

A further objective of the present invention is to provide a suspension lamp, wherein the operator only needs to insert the first connecting terminal into the first protective jacket and insert the second

connecting terminal into the second protective jacket so as to form an electrical connection between each of the electric wires and the power supply wire, so that the electric circuit of the suspension lamp is connected easily and conveniently, thereby facilitating the operator mounting the electric  
5 circuit of the suspension lamp.

In accordance with the present invention, there is provided a suspension lamp, comprising a switch box, a wire connection base, a circuit board, a power supply wire, a first protective jacket, a second protective jacket, a first connecting terminal, a second connecting terminal, and a  
10 plurality of electric wires, wherein:

the wire connection base is mounted in the switch box and includes a main body;

the circuit board is mounted in the main body of the wire connection base and has a side provided with a plurality of first plugs each  
15 connected to a positive pole of the circuit board and a plurality of second plugs each connected to a negative pole of the circuit board;

the power supply wire is connected to the circuit board and has a positive pole connected to each of the first plugs of the circuit board and a negative pole connected to each of the second plugs of the circuit board;

20 the first protective jacket is mounted on the first plugs of the circuit board;

the second protective jacket is mounted on the second plugs of the circuit board;

the first connecting terminal is inserted into the first protective jacket;

5 the second connecting terminal is inserted into the second protective jacket; and

each of the electric wires is mounted on the first connecting terminal and the second connecting terminal and has a positive pole formed with a first plug inserted into the first connecting terminal and connected to a  
10 respective one of the first plugs of the circuit board and a negative pole formed with a second plug inserted into the second connecting terminal and connected to a respective one of the second plugs of the circuit board.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with  
15 appropriate reference to the accompanying drawings.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is an exploded perspective view of a conventional suspension lamp in accordance with the prior art;

Fig. 2 is a perspective view of a suspension lamp in accordance  
20 with the preferred embodiment of the present invention;

Fig. 3 is an exploded perspective view of the suspension lamp as shown in Fig. 2;

Fig. 4 is a partially exploded perspective view of the suspension lamp as shown in Fig. 2;

Fig. 5 is a partially cut-away plan cross-sectional view of the suspension lamp as shown in Fig. 2; and

5 Fig. 6 is a partially plan cross-sectional view of the suspension lamp as shown in Fig. 2.

### **DETAILED DESCRIPTION OF THE INVENTION**

Referring to the drawings and initially to Figs. 2-5, a suspension lamp in accordance with the preferred embodiment of the present invention

10 comprises a switch box 2 having a peripheral wall formed with a plurality of locking grooves 21, a plurality of bent support tubes 3 each mounted on the switch box 2 and each having an end formed with a connector 31 locked in a respective one of the locking grooves 21 of the switch box 2, an upper cover 23 mounted on an opened top of the switch box 2 and having a center formed

15 with a through hole 231, a hollow threaded rod 22 mounted in the switch box 2 and having a first end extended through the through hole 231 of the upper cover 23 and a second end formed with a threaded section 221 formed with an opening 222, a nut 232 screwed on the first end of the threaded rod 22 and rested on the upper cover 23, a screw 24 extended through a closed bottom of

20 the switch box 2 and screwed into the threaded section 221 of the threaded rod 22, and a nut 25 screwed on the screw 24 and rested on the bottom of the switch box 2.

The suspension lamp further comprises a wire connection base 4, a circuit board 5, a power supply wire 7, a first protective jacket 53, a second protective jacket 54, a first connecting terminal 61, a second connecting terminal 62, and a plurality of electric wires 63.

5           The wire connection base 4 is mounted in the switch box 2 and includes a main body 41 having a center formed with a passage hole 411 for passage of the threaded rod 22. The main body 41 of the wire connection base 4 has an inner wall formed with a guide track 412.

          The circuit board 5 is mounted in the main body 41 of the wire  
10 connection base 4 and is guided by the guide track 412 of the main body 41 of the wire connection base 4. The circuit board 5 has a center formed with a passage hole 50 for passage of the threaded rod 22. The circuit board 5 has a side provided with a plurality of first plugs 51 each connected to a positive pole of the circuit board 5 and a plurality of second plugs 52 each connected  
15 to a negative pole of the circuit board 5. Preferably, the first plugs 51 of the circuit board 5 are juxtaposed to each other, and the second plugs 52 of the circuit board 5 are juxtaposed to each other.

          As shown in Figs. 4 and 6, the power supply wire 7 is connected to the circuit board 5 and has a positive pole 71 connected to the positive pole of  
20 the circuit board 5 and connected to each of the first plugs 51 of the circuit board 5 and a negative pole 72 connected to the negative pole of the circuit board 5 and connected to each of the second plugs 52 of the circuit board 5.

The first protective jacket 53 is mounted on the first plugs 51 of the circuit board 5 and has an upper end formed with an opening 532 and a periphery formed with a locking slot 531 communicating with the opening 532.

5           The second protective jacket 54 is mounted on the second plugs 52 of the circuit board 5 and has an upper end formed with an opening 542 and a periphery formed with a locking slot 541 communicating with the opening 542.

          The first connecting terminal 61 is inserted into the first protective  
10 jacket 53. Preferably, the first connecting terminal 61 is inserted into the opening 532 of the first protective jacket 53 and has a lower end formed with a locking block 611 locked in the locking slot 531 of the first protective jacket 53.

          The second connecting terminal 62 is inserted into the second  
15 protective jacket 54. Preferably, the second connecting terminal 62 is inserted into the opening 542 of the second protective jacket 54 and has a lower end formed with a locking block 621 locked in the locking slot 541 of the second protective jacket 54.

          Each of the electric wires 63 is mounted on the first connecting  
20 terminal 61 and the second connecting terminal 62 and has a positive pole formed with a first plug 631 inserted into the first connecting terminal 61 and connected to a respective one of the first plugs 51 of the circuit board 5 and a

negative pole formed with a second plug 632 inserted into the second connecting terminal 62 and connected to a respective one of the second plugs 52 of the circuit board 5.

In assembly, the power supply wire 7 is extended through the inside  
5 of the threaded rod 22 and the opening 222 of the threaded rod 22, and is extended into the switch box 2. Then, the power supply wire 7 is connected to the circuit board 5, with its positive pole 71 connected to the positive pole of the circuit board 5 and connected to each of the first plugs 51 of the circuit board 5 and with its negative pole 72 connected to the negative pole of the  
10 circuit board 5 and connected to each of the second plugs 52 of the circuit board 5 to form an electrical connection state. Then, the first protective jacket 53 is mounted on the first plugs 51 of the circuit board 5, and the second protective jacket 54 is mounted on the second plugs 52 of the circuit board 5 as shown in Fig. 3. Then, the circuit board 5 is mounted in the guide track  
15 412 of the main body 41 of the wire connection base 4. Then, the wire connection base 4 is mounted in the switch box 2.

Then, the connector 31 of each of the support tubes 3 is locked in a respective one of the locking grooves 21 of the switch box 2. Then, each of the electric wires 63 is extended through a respective one of the support tubes  
20 3. At this time, each of the electric wires 63 is mounted on the first connecting terminal 61 and the second connecting terminal 62 with its first plug 631 inserted into the first connecting terminal 61 and with its second



plug 632 inserted into the second connecting terminal 62 as shown in Fig. 3. Then, the first connecting terminal 61 is inserted into the opening 532 of the first protective jacket 53, and the second connecting terminal 62 is inserted into the opening 542 of the second protective jacket 54, so that the first plug 631 of each of the electric wires 63 is electrically connected to a respective one of the first plugs 51 of the circuit board 5 and the second plug 632 of each of the electric wires 63 is electrically connected to a respective one of the second plugs 52 of the circuit board 5 to form an electrical connection state.

Finally, the upper cover 23 is mounted on the opened top of the switch box 2 and is combined with the threaded rod 22 by the nut 232, and the threaded rod 22 is combined with the screw 24 by the nut 25, thereby assembling the suspension lamp as shown in Fig. 2.

Accordingly, the operator only needs to insert the first connecting terminal 61 into the first protective jacket 53 and insert the second connecting terminal 62 into the second protective jacket 54 so as to form an electrical connection between each of the electric wires 63 and the power supply wire 7, so that the electric circuit of the suspension lamp is connected easily and conveniently, thereby facilitating the operator mounting the electric circuit of the suspension lamp.

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that

many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.